OH0705382B (E) (P) Printed in Japan

CASIO

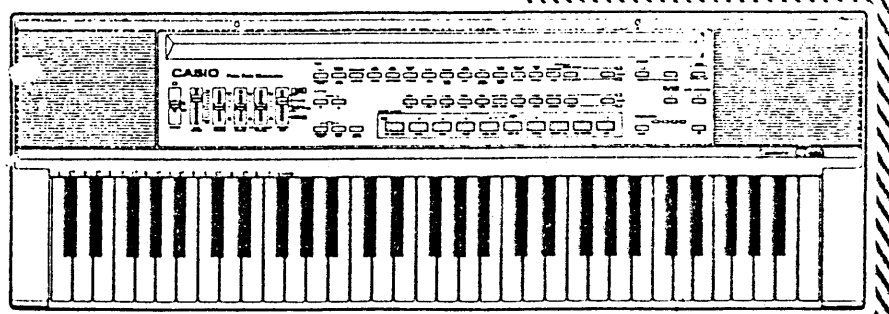
Casiotone

CT-660

ELECTRONIC MUSICAL INSTRUMENT
INSTRUMENTO MUSICAL ELECTRONICO

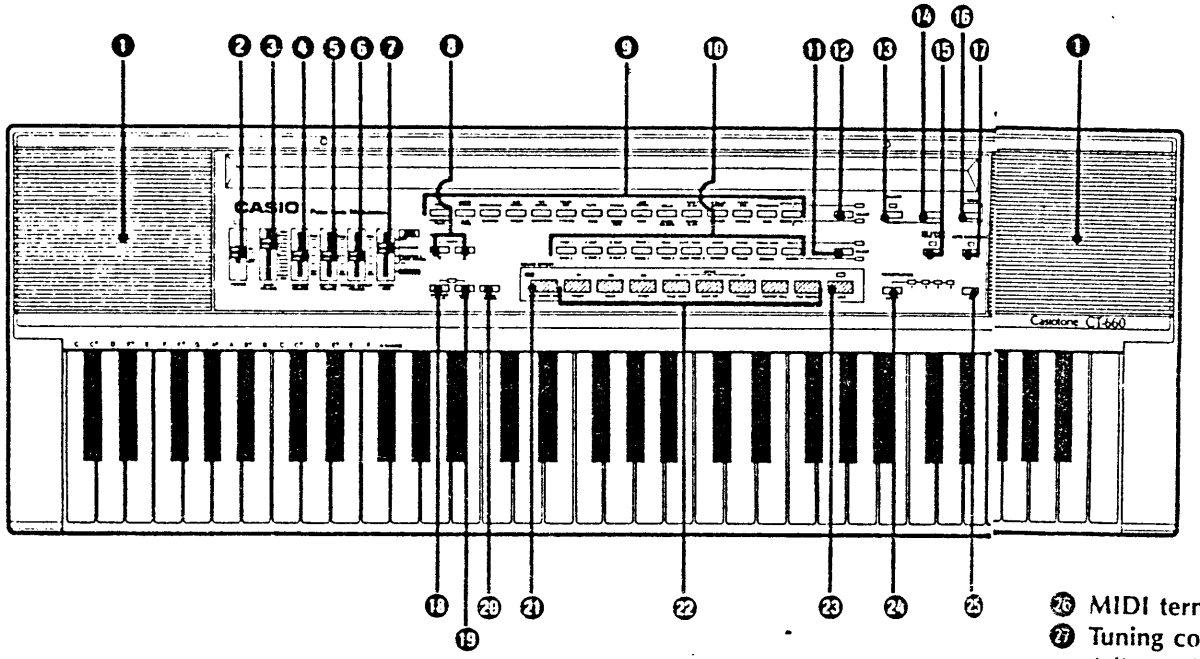
OPERATION MANUAL 2

MANUAL DE OPERACION 30

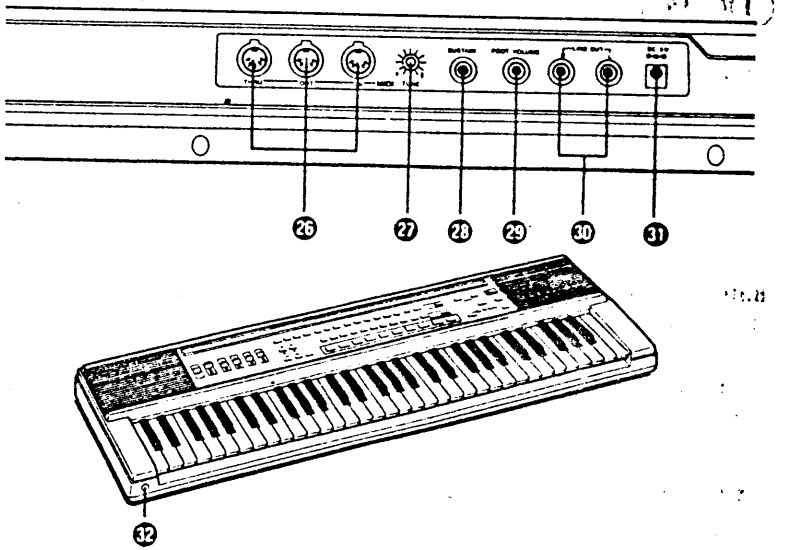


(E) (P)

1 General Guide



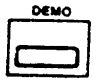
[Rear panel]



❶ Built-in speakers
❷ Power switch
❸ Main volume slider
❹ Accomp volume slider
❺ Rhythm volume slider
❻ Sound effect volume slider
❼ Chord/MIDI selector
❽ Tempo control buttons
❾ Tone selectors
❿ Rhythm selectors
⓫ Rhythm select button
⓬ Tone select button
⓭ Record button
⓮ Recording start/stop button
⓯ Tone bank button
⓰ Demo button
⓱ Auto harmonize button
⓲ Synchro/fill-in button
⓳ Rhythm start/stop button
⓴ Intro/ending button
㉑ FADE pad
㉒ Sound effect pads
㉓ HOLD pad
㉔ Registration select button
㉕ Registration set button
㉖ MIDI terminals (IN/OUT/THRU)
㉗ Tuning control
Adjusts the pitch of the entire keyboard within ±30 cents and allows easy tuning with other instruments.
㉘ Sustain jack
㉙ Foot volume jack
㉚ Output jacks (L/R)
* *As many preset tones (and sound effects) are in stereo, be sure to use both output jacks when connecting to an external amplifier.*
㉛ AC adaptor jack
㉜ Headphone jack

Demonstration Tune

This unit features a preset demonstration tune which has been carefully programmed to showcase all the features and benefits of this unit. Simply press the Demo button ⓰, and listen to the CT-660 plays itself!



* *The demonstration tune is played in an endless loop. Press the Demo button again to stop the tune.*
* *The keyboard is inoperable while playing the demonstration tune.*

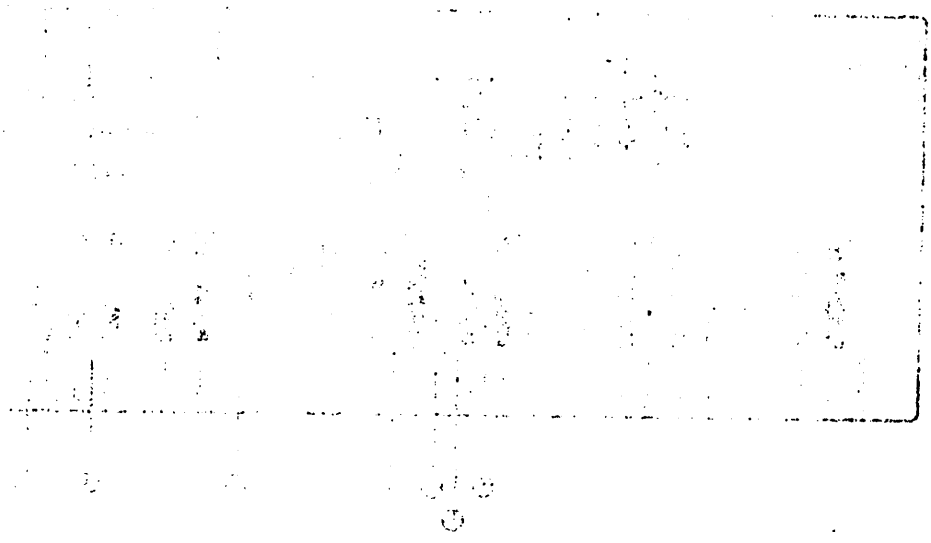
Casiotone CT-660

ELECTRONIC MUSICAL INSTRUMENT

Introduction

Your new CT-660 keyboard is a state-of-the-art musical instrument which incorporates the latest electronics technology to make its operation as easy as possible. Exceptional sound quality backed up by a host of sophisticated features and functions makes this keyboard a joy to play for everyone.

In order to enjoy the features and functions of this unit to their fullest, be sure to carefully read this manual and follow the instructions contained herein.



Contents

1. General Guide 4
2. Power Supply 6
3. General Operation 7
4. Preset Tones 8
5. Tone Bank Sound Combinations 11
6. Auto-rhythms 13
7. Auto-accompaniment 14
8. Sound Effects 18
9. Registration Function 20
10. Performance Memory Function 21
11. MIDI 23
12. Troubleshooting 26
13. Care of Your Keyboard 27
14. Specifications 28

2 Power Supply

DC Power

- **Dry batteries**

  This unit can be powered by six D size (SUM-1/R20P) manganese dry cell batteries. Weakened batteries will result in lower volume or poor tonal quality. The power indicator lamp will gradually lose its brightness when battery power weakens. At this time, change batteries or shift to one of the alternate power sources mentioned below.

Battery replacement:

① Open the battery compartment cover on the bottom of the unit and take out used batteries.

② Load new batteries taking care that polarity is correct.

• It is advisable to replace all six batteries at the same time for longer battery life.

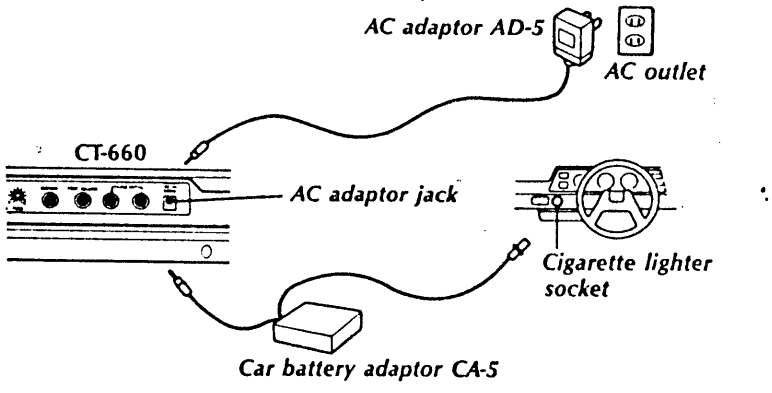
• Standard battery life is approximately 6 hours.

- **Car battery**

  With the car battery adaptor (CA-5, optional), DC power is supplied from a car battery through the cigarette lighter socket.

AC Power

An AC adaptor (AD-5, optional) is required when using household current. Use only a genuine CASIO adaptor with the same voltage rating (100, 117, 220, or 240) as the power supply in your area to prevent component damage. Plug the AC adaptor into the AC outlet and the cord into the unit. This will automatically cut off the battery power supply.



★ **Auto power off function**

Power is automatically cut off approximately 6 minutes after the last operation of the unit. Power supply can be restored by switching power OFF and then ON again.

CAUTION

* Use only genuine CASIO adaptors to avoid risk of damage.
* Remove batteries from the battery compartment when the unit is not used for extended periods. (Battery leakage can damage electrical parts.)
* The adaptor may become warm when left connected to an outlet. This is normal, but the adaptor should be disconnected when not in use.
* THE FOLLOWING CONDITION CAN CAUSE BATTERIES TO BURST:

1. Use of adaptors other than genuine CASIO adaptors.
2. Loading batteries with polarities reversed.

3 General Operation

** Refer to the general guide found on page 4–5 for exact locations of this keyboard controls and connections.*

① Turn the power switch ON.
② Adjust the volume level.
③ Select one of 30 preset tones (see "Preset Tones", page 8) or one of 465 Tone Bank sounds (see "Tone Bank Sound Combinations", page 11).
④ Now, start playing.

4 Preset Tones

• Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.

• To select a preset tone

① Specify either the upper or lower row of preset tones by pressing the tone select button, The upper or lower select indicator lights to show the active row.

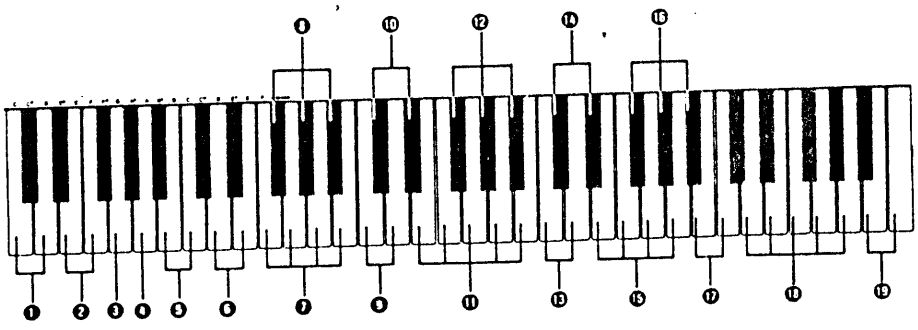
② Press one of the tone selectors to choose a preset tone.

• "PIANO" tone is automatically selected when power is turned ON.

• To select percussion sounds

When PERCUSSION sound is selected by the tone selector, the keyboard keys can be used to play a total of 49 different built-in percussion sounds. These sounds are assigned to respective keys as shown below;

• Percussion sounds can be output through MIDI, allowing this keyboard to be used as a MIDI percussion sound source (see page 25).

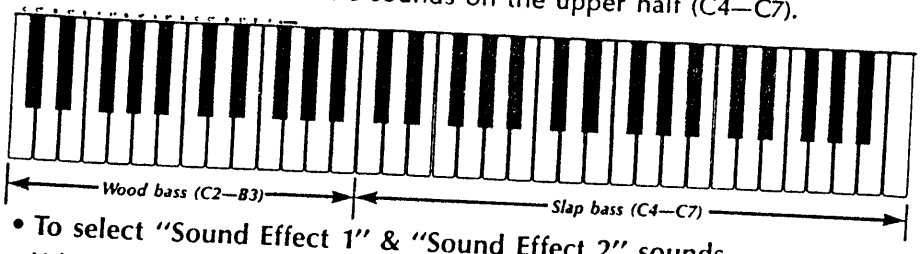


❶ bass drum 1/2
❷ snare drum 1/2
❸ gated snare drum
❹ rim shot
❺ closed hihat 1/2
❻ open hihat 1/2
❼ crash cymbal 1/2/3/mixed
❽ synth. cymbal 1/2/3
❾ ride cymbal 1/2
❿ gong 1/2
⓫ tom 1/2/3/4/mixed
⓬ synth. tom 1/2/3
⓭ cow bell 1/2
⓮ triangle open/mute
⓯ timbales; high mute/high/low/mixed
⓰ computer game sound 1/2/3
⓱ agogo high/low
⓲ conga; high mute/high/middle/low/mixed
⓳ clave high/low

- **Dual bass sounds**

When BASS sound is selected by pressing the "BASS" button (one of the tone selector), two different bass tones can be played on the keyboard at the same time.

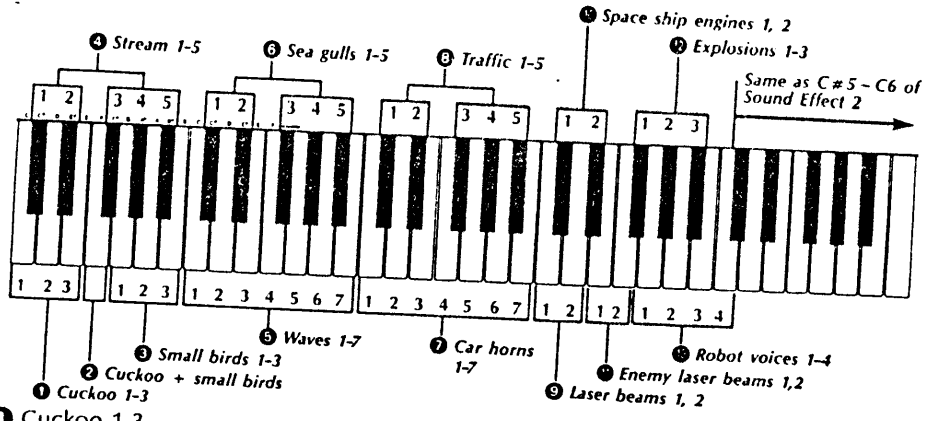
The WOOD BASS tone sounds on the lower half of the keyboard (C2—B3), while the SLAP BASS tone sounds on the upper half (C4—C7).



- **To select "Sound Effect 1" & "Sound Effect 2" sounds**

When either of the Sound Effect tone selectors are pressed, the keyboard keys can be used to play a total of 98 different built-in "sound effect" sounds. These sounds are assigned to respective parts of the keyboard as shown below;

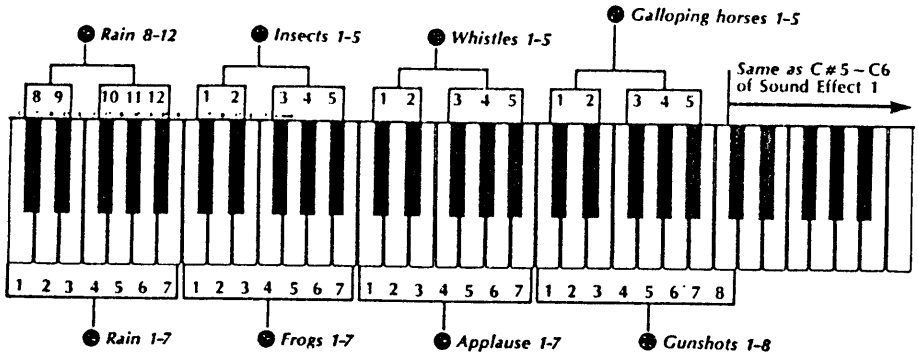
<Sound Effect 1 sounds>


❹ Stream 1-5
❻ Sea gulls 1-5
❽ Traffic 1-5
❿ Space ship engines 1, 2
⓬ Explosions 1-3
Same as C#5 - C6 of Sound Effect 2
1 2
3 4 5
1 2 3
1 2 3 4 5 6 7
1 2 3 4
❶ Cuckoo 1-3
❷ Cuckoo + small birds
❸ Small birds 1-3
❺ Waves 1-7
❼ Car horns 1-7
❾ Laser beams 1, 2
⓫ Enemy laser beams 1,2
⓭ Robot voices 1-4

❶ Cuckoo 1-3
❷ Cuckoo + small birds
❸ Small birds 1-3
❹ Stream 1-5
❺ Waves 1-7
❻ Sea gulls 1-5
❼ Car horns 1-7
❽ Traffic 1-5
❾ Laser beams 1, 2
❿ Space ship engines 1, 2
⓫ Enemy laser beams 1,2
⓬ Explosions 1-3
⓭ Robot voices 1-4

4. Preset Tones

<Sound Effect 2 sounds>



- Rain 1-7
- Rain 8-12
- Frogs 1-7
- Insects 1-5
- Applause 1-7
- Whistles 1-5
- Gunshots 1-8
- Galloping horses 1-5

5 Tone Bank Sound Combinations

** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

This keyboard features Casio's innovative "Tone Bank" feature, which lets you choose from an amazing total of 465 different sound combinations. To create these layered sounds, the Tone Bank function actually integrates the characteristics of the 30 preset sounds which are produced by the new PCM sound source to create entirely new and distinct sounds which can be selected through the following procedure.

• To select Tone Bank Sound Combinations

① Select any of the 30 preset tones. When selecting Tone Bank sounds, the tone initially selected is used as a base, or "Primary" sound.

** When the Primary sound is selected, the keyboard features 10-note polyphony.*

② Press the Tone Bank button.
This activates the Tone Bank function, allowing you to choose a Secondary sound to integrate with the Primary sound you just selected.

** After the Tone Bank button is pressed, the keyboard changes to 5-note polyphony.*

③ Select any other of the 30 preset tones. The characteristics of this "Secondary" sound is automatically integrated with those of the "Primary" sound already selected.

• To select a different secondary sound

The secondary sound can be changed at any time, as long as the Tone Bank function is selected. Simply select a different preset tone—the primary sound remains the same.

• To select a different primary sound

The primary sound can be changed by first turning the Tone Bank function OFF (press Tone Bank button so that indicator goes out), selecting any other preset tone, and finally turning the Tone Bank function back ON. The secondary tone remains the same in this case.

5. Tone Bank Sound Combinations

< Example of Tone Bank Operation >

① Select the preset ORGAN tone by pressing the corresponding tone selector. (This is the "Primary" sound.) Initially, the ORGAN tone can be played with 10-note polyphony.

② Press the Tone Bank button.
The ORGAN tone can now be played with 5-note polyphony.
• *Indicator lights*

NOTE:
When power is turned ON, the PIANO tone is automatically selected in Tone Bank memory. Because of this, procedure ② above causes the ORGAN tone to be integrated with the PIANO tone.

③ Select the preset CHORUS tone by pressing the corresponding tone selector. (This is the "Secondary" sound.) Now, the "ORGAN + CHORUS" integrated Tone Bank combination sound can be played with 5-note polyphony.

④ Next, try changing the Secondary sound by selecting the preset FLUTE tone. The "ORGAN + FLUTE" integrated Tone Bank combination sound can be played with 5-note polyphony.

⑤ Next, try changing the Primary sound by first pressing the Tone Bank button once again to turn the Tone Bank function OFF temporarily. The preset ORGAN tone can once again be played with 10-note polyphony.

⑥ Select a new Primary sound—the STRINGS tone for example, and turn the Tone Bank function back ON. As the secondary sound (FLUTE) does not change in this case, you can now play the "STRINGS + FLUTE" integrated Tone Bank combination sound with 5-note poly-phony.

6 Auto-rhythms

** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

• Playing an auto-rhythm

① Press the rhythm select button to choose the upper row or the lower row of auto-rhythms. The upper or lower select indicator lights to show the active row.
② Press one of the rhythm selectors.
③ Press start/stop button to start the rhythm.
④ Adjust the tempo of the rhythm by using the tempo control buttons. Pressing the <▲> button will increase tempo, while pressing the <▼> button will decrease tempo.

** Tempo of the auto-rhythm can be adjusted between 40 and 256 beats per minute. Pressing both tempo keys at the same time resets the tempo to 132 beats per minute.*

⑤ You can adjust the relative volume of the rhythm by using the rhythm volume slider.
⑥ Press start/stop button once again to stop auto-rhythm play.

• Using Synchro/fill-in button

Press to enter synchro start standby. Rhythm starts when an accompaniment keyboard key (lower 1.5 octave, C through F) is pressed. (See page 15 to use synchro start in the auto-accompaniment performance.) When pressed during auto-rhythm and accompaniment performance, an appropriate fill-in is inserted in the rhythm pattern. If the button is held down, the fill-in pattern is repeated until the end of the measure during which the button is released.

• Using Intro/ending button

If you press the intro/ending button instead of pressing the start/stop button to start an auto-rhythm, the selected auto-rhythm begins after a one-measure intro pattern. This can be an effective way to lead into auto-rhythm performance. If pressed during auto-rhythm and accompaniment performance, the rhythm stops after an appropriate ending pattern.

★ Using synchro start with an intro pattern

Press the synchro/fill-in button to enter synchro start standby, and subsequently press the Intro/ending button. Rhythm starts when an accompaniment keyboard key is pressed, after a one-measure intro pattern.

7 Auto-accompaniment

** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

- **Chord/MIDI selector**

  Slide to select one of the Casio Chord functions (or MIDI function).

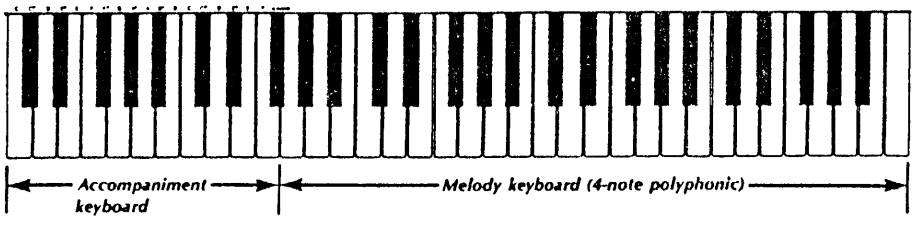
  OFF .....For normal play without auto-accompaniment.
  FINGERED 1 & 2 ...For auto-accompaniment pressing chords as usual.
  ON .....For auto-accompaniment using the Casio Chord system.
  MIDI .....Set to use the MIDI functions (refer to "11. MIDI").

- **Accompaniment volume control**

  Adjust the volume of the auto-accompaniment.

NOTES:

- If the Chord/MIDI selector is set to "FINGERED (1 or 2)" or "ON", the lower 1.5 octave of the keyboard become accompaniment keyboard keys, and the upper part of the keyboard becomes 4-note polyphonic.



- During auto-accompaniment performance, chord played on the accompaniment keyboard will continue to sound after releasing the keys.

- Auto-accompaniment starts with rhythm, the moment the accompaniment keyboard key is pressed if synchro start is in standby status.

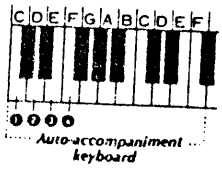
Casio Chord system

The Casio Chord system has been developed so you can play the four main types of chords more easily. Playing of the chords is simplified as shown below:

- Pressing one of the accompaniment keyboard keys produces a major chord corresponding to that note.
- Simultaneously pressing any key to the right (two keys at the same time) results in a minor chord.
- Similarly, pressing one more key to the right (three keys in all) produces a seventh chord, and pressing the fourth key to the right (four keys in all) creates a minor seventh chord.

<Examples>

C (C major chord)—Press ❶.
Cm (C minor chord)—Press ❶, ❷ together.
C7 (C seventh chord)—Press ❶, ❷, ❸ together.
Cm7 (C minor seventh chord)—Press ❶, ❷, ❸, ❹ together.



** Not only ❷, ❸, and ❹, but any black or white keys can be used as long as they are to the right of ❶.*

[1] Auto-accompaniment using the Casio Chord system (One-finger method)

① Set the Chord/MIDI selector to "ON".
② Select one of the auto-rhythms and press the synchro/fill-in button.
** Tempo indicator lights, meaning that the accompaniment keyboard keys are ready for play.*
③ Play on the accompaniment keyboard keys according to the Casio Chord system.
** Adjust the tempo and accompaniment volume using the respective controls.*

[2] Auto-accompaniment play using standard chord fingering

① Set the Chord/MIDI selector to "FINGERED 1" or "FINGERED 2".
② Select one of the auto-rhythms and press the synchro/fill-in button.
** Tempo indicator lights, meaning that the accompaniment keyboard keys are ready for play.*
③ Play a chord on the accompaniment keyboard keys.
** Adjust the tempo and accompaniment volume using the respective controls.*
** This unit is capable of recognizing the following chords; <M, m, −5, +5, dim, sus4, 7, M7, m7, mM7, m7-5, 7sus4, 9, m9>*

<About "Fingered 1" and "Fingered 2">

This keyboard features two different types of fingered accompaniment patterns. You can select which type you want by selecting either the Fingered 1 mode, or the Fingered 2 mode. Respective accompaniment patterns and characteristics are as listed below.

(Fingered 1 Accompaniment)

Accompaniment consists of a single bass line and two different backing chord patterns. The pattern does not change until you play a chord consisting of at least 3 notes.

(Fingered 2 Accompaniment)

Accompaniment consists of a single bass line and a single backing chord pattern. In addition, you can add notes manually in two-note polyphony on the "accompaniment keyboard" without affecting the accompaniment pattern. The pattern does not change until you play a chord consisting of at least 3 notes. Fingered 2 accompaniment also allows you to choose the way the chord will play rhythmically. If you keep repeating your chord shape in any rhythmic pattern you choose (quarter-notes, eight-note triplets or any syncopation) this keyboard will play that chord pattern rhythm, allowing for more flexibility in your accompaniment patterns.

* *Auto-accompaniment tones are preset in correspondence to each auto-rhythm type. A list of auto-rhythms and corresponding accompaniment tones is provided on page 17.*

<About the tones used in the auto-accompaniment>

Each auto-accompaniment pattern consists of one bass line and two types of chord lines (chord 1 and chord 2). The tones of these elements are preset corresponding to each auto-rhythms as shown below;

RHYTHMS	CHORD 1 TONES	CHORD 2 TONES	BASS TONES
ROCK 1	BRASS ENS.	METALLIC SOUND	SLAP BASS
ROCK 2	BRASS	SYNTH. CLAVI	SLAP BASS
8 BEAT 1	JAZZ ORGAN	PIANO	SLAP BASS
8 BEAT 2	METALLIC SOUND	BRASS ENS.	SLAP BASS
16 BEAT 1	MARIMBA	ELEC. PIANO	SLAP BASS
16 BEAT 2	SYNTH. CLAVI	BRASS ENS.	SLAP BASS
DISCO 1	SYNTH. CELESTA	BRASS ENS.	SLAP BASS
DISCO 2	HARP	STRINGS	BRASS ENS.
POPS 1	JAZZ ORGAN	PIANO	WOOD BASS
POPS 2	FLUTE	BRASS ENS.	SLAP BASS
SLOW ROCK 1	PIANO	VIBRAPHONE	WOOD BASS
SLOW ROCK 2	PIANO	HARP	WOOD BASS
SWING	PIANO	BRASS ENS.	WOOD BASS
SAMBA	SYNTHE. CLAVI	JAZZ ORGAN	SLAP BASS
BOSSA NOVA	ELEC. PIANO	STRINGS	WOOD BASS
WALTZ	STRINGS	ORGAN	WOOD BASS
REGGAE	JAZZ ORGAN	FUNKY CLAVI	SLAP BASS
TANGO	ACCORDION	PIANO	WOOD BASS
BEGUINE	PIANO	JAZZ GUITAR	WOOD BASS
MARCH	BRASS ENS.	FLUTE	BRASS ENS.

• Using the auto harmonize function

When you're using the Casio Chord or fingered chord function, you can add automatic harmony to your melodies by pressing the auto harmonize button. If you use this function when Tone Bank button is ON, automatic harmony is added using the "Secondary" sound (see "Tone Bank Sound Combinations", page 11), and "Primary" sound performance becomes monophonic.

• The auto harmonize function is inoperative when Chord/MIDI selector is set to OFF.
• When you select this function, melody keyboard performance becomes monophonic even if no accompaniment keyboard keys are pressed.

8 Sound Effects

** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

𝄞 This keyboard features 8 built-in sound effect pads, which can be used to add unique effects and atmosphere to your musical performances.

- **To sound the 8 sound effects**

To add sound effects at any point in your performance, simply press one of the sound effect pads. The preset sound effect will last for about ten seconds. You can also use the FADE pad and HOLD pad to alter the type and length of effect performance.

Try pressing each of the sound effect pads and listen to the unique sounds they control.

FOREST—A cuckoo and other small birds sing by the side of a bubbling stream.
OCEAN—Gulls cry in the distance as the waves crash on the beach.
STREET—The busy sounds of the city—traffic noises, honking horns.
SPACE WARS—Laser beam fire, pulsating rocket engines and explosions.
RAINY DAY—The soothing sounds of rain and dripping water.
EVENING—Singing insects and an occasional frog create a symphony of twilight sounds.
CONCERT HALL—Rounds of applause and whistles calling for an encore performance.
WILD WESTERN—Pistols fire and horses gallop away in a typical scene from the wild, wild west.

Notes on sound effect performance:

- The sound effects will be inoperative when the Chord/MIDI selector is set to "MIDI". Note that some sound effect pads perform other functions when set for MIDI performance.
- If you press a sound effect pad and then press another one while the first is still sounding, performance will automatically switch to the second sound.
- You can control the relative volume level of sound effect performance with the sound effect volume slider. Note, however, that if you try to alter the volume level while an effect is sounding, the effect will automatically turn OFF.

- **Using the HOLD function**

The HOLD pad can be used to cause any of the effects to sound continuously. To use this function, first press the HOLD pad so that the corresponding LED lights.
Next, simply press any sound effect pad—the corresponding sound effect will play until you press the HOLD pad again, turning it OFF.

- **Using the FADE function**

The FADE pad can be used to fade sound effects in and out, providing a "natural" intro or ending to sound effect performance.

- **To fade sound effects IN**

① Press any of the sound effect pads to choose the sound you want to fade in. The sound effect will play for about 10 seconds.

② Press the FADE pad.
The sound effect you selected in step ① will "fade" in, and play for about 10 seconds.

• Note that the FOREST effect will fade in automatically if the FADE IN function is used immediately after turning power ON.

- **To fade sound effects OUT**

Sound effects can only be faded OUT when the HOLD function is in use. While any effect is sounding in the HOLD ON state (LED is lit above HOLD pad), press the FADE pad. The sound will fade out slowly.

9 Registration Function

** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

This keyboard features 4 memory banks which can be used to "register" or store often-used tones, rhythms, Tone Bank sounds, etc. These registered settings can be called back instantly with just the touch of a button.
The following types of settings can be held in each registration memory bank.

- Preset tone or a Tone Bank sound selections
- Sound Effect selections
- HOLD pad ON/OFF setting
- Auto-rhythm settings
- Auto harmonize button ON/OFF setting

• To register keyboard settings

① Select the bank (1-4) via the registration select button.
** corresponding LED lights*

Now, set up the keyboard with the tone (or the tone bank), rhythm and effect desired.

② Press the registration set button to register the settings into the registration bank.

③ Press the registration select button as necessary to get out of the registration mode.
** This unit keep the last registration bank (bank 4) settings when getting out of the registration mode.*

• To recall the registered bank

Press the registration select button as necessary to select the bank you desire.

NOTE:
If the registration select button is pressed while a sound effect pattern is sounding, the sound effect performance will switch to the one which is registered in the newly selected registration bank.

10 Performance Memory Function

** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

The performance memory function lets you "record" notes as you play them on the keyboard. Up to 1250 notes can be stored in memory for subsequent playback.

Recording

① Start an auto-rhythm and adjust the tempo of the recording.
② Press the record button to enter the recording standby mode.
** LED flashes*
③ Set the Chord/MIDI selector to "FINGERED 1", "FINGERED 2" or "ON" if you want to use auto-accompaniment in your recording. If not, set this switch "OFF".
④ Select one of the auto-rhythms you like.
** If you don't want an auto-rhythm in your recording (or if you want to start an auto-rhythm during recording), press rhythm start/stop button here.*
** If you want to start an auto-rhythm with intro pattern, press intro/ending button here.*
** If you want to start an auto-rhythm using synchro start, press synchro/fill-in button here.*
** If you want a sound effect pattern to sound continuously from any point in your performance, press the HOLD pad here. Notice that the HOLD pad on/off setting cannot be altered during recording.*
⑤ Press the recording start/stop button to start recording. Recording starts after one measure of beat count.
⑥ Play the keyboard as you like.

NOTE:
You can record changes in the following operations as well as keyboard play during recording.

- Changing preset tones
- Changing tone banks
- Changing auto-rhythms
- Starting or stopping a rhythm
- Starting a rhythm using intro start
- Inserting the fill-in patterns of rhythms
- Inserting or changing sound effects
- Fading sound effects in and out.
- Setting auto-harmonize on/off
- Setting registration select (bank 1-4)
- Ending the rhythm with the ending pattern

⑦ Press the recording start/stop button again to stop recording.

NOTES:

- Memory capacity is approximately 1250 notes. Operations such as changes in rhythms, tones or Tone Bank sound selections are counted as a half-note.
- Recording automatically ends when you exceed the memory capacity

Playing back memory contents

① Press the recording start/stop button to play back your performance. LED lights and the playback starts.

- You can play whole keyboard with the playback if the recording has been done in Casio Chord "OFF" mode. If you recorded in Casio Chord "ON" mode, only the melody keyboard can be used.
- In this playback status, all switches and buttons except volume sliders are inoperative.
- Tempo of playback cannot be adjusted.
- If you alter volume level of sound effects using the sound effect volume slider while an effect is sounding, the effect will automatically turn off.

② Press the recording start/stop button again to stop the playback.

11 MIDI

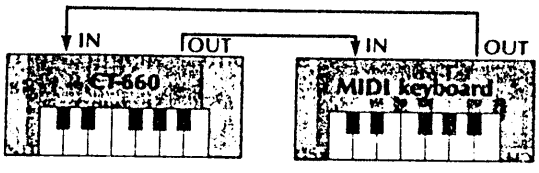
** Refer to the general guide found on page 4-5 for exact locations of this keyboard controls and connections.*

"MIDI" stands for "Musical Instrument Digital Interface". Practically speaking, it lets you connect this keyboard to other MIDI-equipped musical instruments and devices, such as synthesizers, drum machines, sequencers, and even personal computers.

MIDI IN.....Receives MIDI signal from external device.
MIDI OUT.....Sends MIDI signal to external device.
MIDI THRU .....Passes unchanged signal received from one device through MIDI IN to another device.

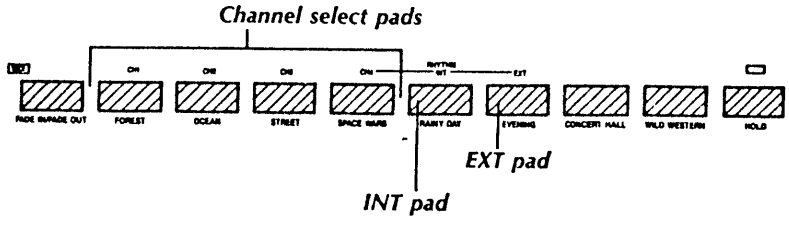
★ Set Chord/MIDI selector to "MIDI" to use MIDI function of this keyboard.

[1] Single channel MIDI mode (Mode 3: Omni Off, Poly)
Transmits/Receives MIDI messages as a single keyboard (6-note poly).
<EXAMPLE CONNECTION 1>



• Setting the MIDI basic channel

To set the MIDI basic channel on this unit, make sure the Chord/MIDI selector is in the MIDI position, then simply press one of the channel select pads (1~4, normally used as sound effect pads).



NOTE:

While MIDI transmit polyphony for each channel is unlimited, the polyphony played on the keyboard is limited corresponding to the setting of the MIDI basic channel 1 through 4, as shown in <Multi-Timbral polyphony> on page 24.

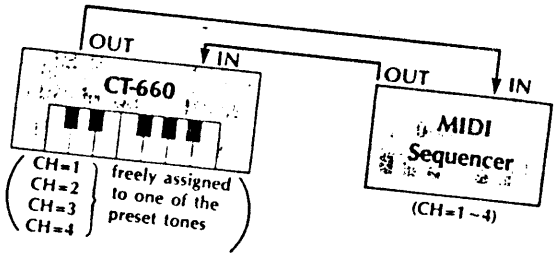
[2] Multi-timbral mode (Mode 4: Omni Off, multi)
In addition to single-keyboard transmission, this unit can be split to receive MIDI messages, assigning different voices to channels 1 through 3, with channel 4 used as either a fourth voice or to determine the MIDI clock setting (EXT or INT).

<Multi-Timbral Polyphony>
CH-1: 6-note polyphonic
CH-2: 4-note polyphonic
CH-3: 2-note polyphonic
CH-4: 4-note polyphonic (when used as a fourth voice)

- **Using channel 4 as the fourth voice**

If you want to use channel 4 as the fourth voice, simply press the CH4 pad of the channel select pads.

<EXAMPLE CONNECTION 2>



- **Setting a timbre (one of the preset tones) on each MIDI channel**

One of the preset tones can be assigned to each MIDI channel by the following procedure;

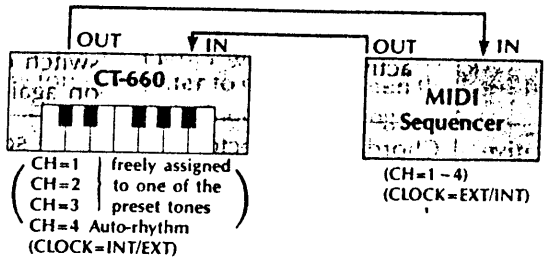
① Press the CH 1 pad of the channel select pads.
② Subsequently select one of the preset tones by the tone selector. The selected tone is assigned to the MIDI channel 1.
③ Repeat the procedure ① and ② on the CH 2-3 (and CH 4, if desired).

• The tone on each MIDI channel can be altered when this unit receives program change messages from other MIDI keyboards or MIDI devices.

• **Using channel 4 as the clock channel**

You can use channel 4 as the clock channel by pressing the INT pad or EXT pad. Press the INT pad to select internal clock, or press the EXT pad to select external clock.

<EXAMPLE CONNECTION 3>



• **Use as a MIDI percussion sound source**

It is possible to use this keyboard as a MIDI percussion sound source, as all percussion instrument sounds are assigned independent MIDI note number, as listed below;

	Note Number	Percussion sound
❶	36/38	bass drum 1/2
❷	40/41	snare drum 1/2
❸	43	gated snare drum
❹	45	rim shot
❺	47/48	closed hihat 1/2
❻	50/52	open hihat 1/2
❼	53/55/57/59	crash cymbal 1/2/3/mixed
❽	54/56/58	synth. cymbal 1/2/3
❾	60/62	ride cymbal 1/2
❿	61/63	gong 1/2
⓫	64/65/67/69/71	tom 1/2/3/4/mixed
⓬	66/68/70	synth. tom 1/2/3
⓭	72/74	cow bell 1/2
⓮	73/75	triangle open/mute
⓯	76/77/79/81	timbales; high mute/high/low/mixed
⓰	78/80/82	computer game sound 1/2/3
⓱	83/84	agogo high/low
⓲	86/88/89/91/93	conga; high mute/high/middle/low/mixed
⓳	95/96	clave high/low

12 Troubleshooting

** For any malfunction, always check battery condition first. (see page 6)*

Trouble	Possible Cause	Remedy
No sound, even if keys are pressed.	1. Main volume turned down. 2. Headphones connected. 3. Auto power off has activated.	1. Turn up main volume. 2. Disconnect headphones. 3. Turn the power switch off and then on again.
Tone bank inoperative **Sound effects inoperative** **Auto harmonize inoperative** **Registration select button inoperative** **Record button inoperative**	Chord/MIDI selector is set to MIDI position.	Change setting of Chord/MIDI selector.
No rhythm.	Rhythm volume turned down.	Turn up rhythm volume.
No accompaniment.	Main and accompaniment volume turned down.	Turn up main and accompaniment volume.
Occasional interference.	Refrigerators, washing machines and similar electric appliances.	Use outlet as far away as possible from appliance thought to be the cause.
No sound when connected to external amplifier.	1. Main volume turned down. 2. Defective connection cord.	1. Turn up main volume. 2. Replace connection cord.

13 Care of Your Keyboard

1. **Avoid heat, humidity, and direct sunlight.**
   Do not overexpose the unit to direct sunlight, place it near a heater, or in any area subject to high temperature.

2. **Avoid severe impacts and do not drop.**
   Severe impacts can result in malfunction. When carrying or transportion the unit, protect the keyboard and keys by packing with soft cloth.

3. **Keep the unit free of liquids, dust, particles, etc.**
   Do not allow foreign matter to enter between the keys. Be especially careful of metallic objects such as hairpins, sewing needles or coins. Also, do not allow the unit to get wet.

4. **Never attempt to modify any part of the unit.**
   Your keyboard is a precision musical instrument made up of sophisticated electronic parts. Any modification of, or tampering with internal components can cause trouble or malfunction.

5. **Do not use lacquer thinner or similar chemicals for cleaning.**
   Clean the keyboard with a soft cloth dampened with a mild detergent solution and squeeze it until almost dry.

6. **Remove batteries before extended storage.**
   Batteries left in the unit for long periods can leak and cause damage to electronic circuitry.

7. **In case of malfunction...**
   Check whether buttons and connections are set correctly as indicated in the troubleshootiong chart. If the unit still does not work properly, contact the original retailer or a nearby dealer. Never attempt to repair the unit yourself. This can result in serious damage of the components.

14 Specifications

Model:	CT-660
Number of keys:	61 keys
Polyphonic:	10-note polyphonic
Preset tones:	30; Piano, Harpsichord, Vibraphone, Jazz organ, Pipe organ, Brass-ens, Flute, Chorus, Jazz guitar, Bells, Funky clavi, Metallic sound, Synth-ens, Percussion, Honky-tonk piano, Elec piano, Marimba, Organ, Accordion, Strings, Oboe, Synth-reed, Harp, Synth-celesta, Synth-clavi, Fantasy, Miracle, Bass (Wood bass/Slap bass), Sound effect 1-2
Tone bank sounds:	465
Auto-rhythms:	20; Rock 1-2, 8 beat 1-2, 16 beat 1-2, Disco 1-2, Pops 1-2, Slow rock 1-2, Swing, Samba, Bossa nova, Waltz, Reggae, Tango, Beguine, March
Rhythm source:	49 PCM rhythm sources
Auto-accompaniment function:	Casio Chord on/fingered 1/fingered 2
Effect:	Auto harmonize
Built-in effects:	Stereo delay, Stereo panning
Registration memory:	4 banks
Real-time memory:	Up to 1250 notes
Terminals:	Line out L/R [output impedance: 3 KΩ, output voltage: 1 V (RMS) MAX], headphone jack, sustain jack, foot volume jack, AC adaptor jack (DC 9 V), MIDI (IN/OUT/THRU)
Tuning control:	A4=442 Hz ±30 cents
Built-in speakers:	12 cm dia × 2
Auto power off function:	Approximately 6 minutes after the last operation

Power source:	3-way AC/DC power source; • AC: 100, 117, 220, 240 V (±10 V), 50/60 Hz, with optional AD-5 AC adaptor • DC: 6 D size (SUM-1/R20P) manganese dry batteries Battery life: Approximately 6 hours • Car battery: Requires optional CA-5 car adaptor
Power consumption:	7.7 W
Dimensions:	938(W) × 320(D) × 89(H) mm 36 15/16″(W) × 12 5/8″(D) × 3 1/2″(H)
Weight:	6.3 kg (13.9 lbs) including batteries
Standard accessories:	6 "D" size batteries, score stand, dust cover

** Designs and specifications are subject to change without notice.*

GUIDELINES LAID DOWN BY FCC RULES FOR USE OF THE UNIT IN THE U.S.A. (not applicable to other areas).

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

..... reorient the receiving antenna
..... relocate the computer with respect to the receiver
..... move the computer away from the receiver
..... plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.